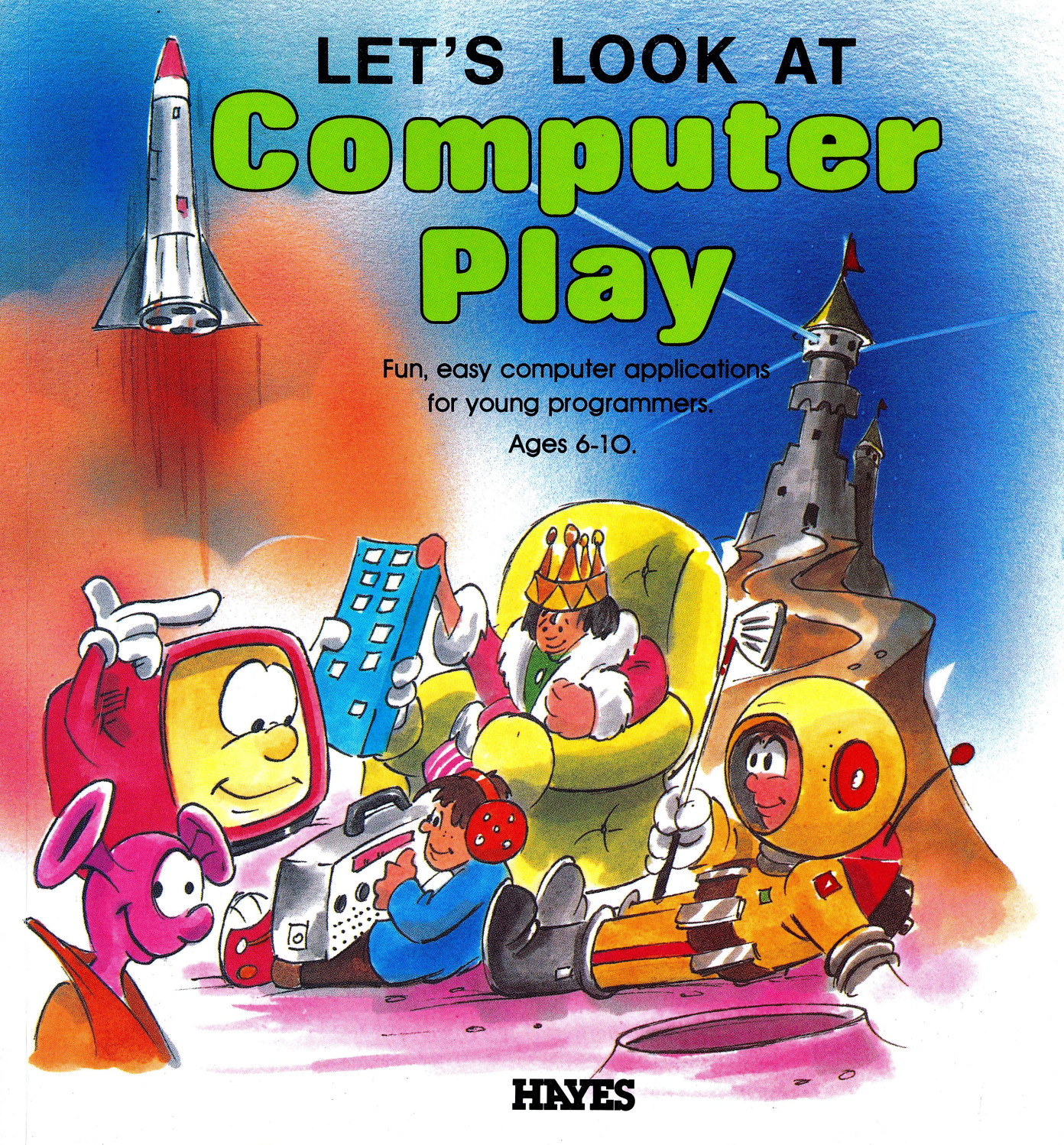
LET'S LOOK AT Computer Play

Fun, easy computer applications
for young programmers.

Ages 6-10.



HAYES

LET'S LOOK AT Computer Play

Programs Compiled and Edited by Peter Lear

Editor: Anne Hayes
Illustration: Ron Migliore
Design: Patricia Novak

Hayes Publishing Ltd., 3312 Mainway, Burlington, Ontario L7M 1A7

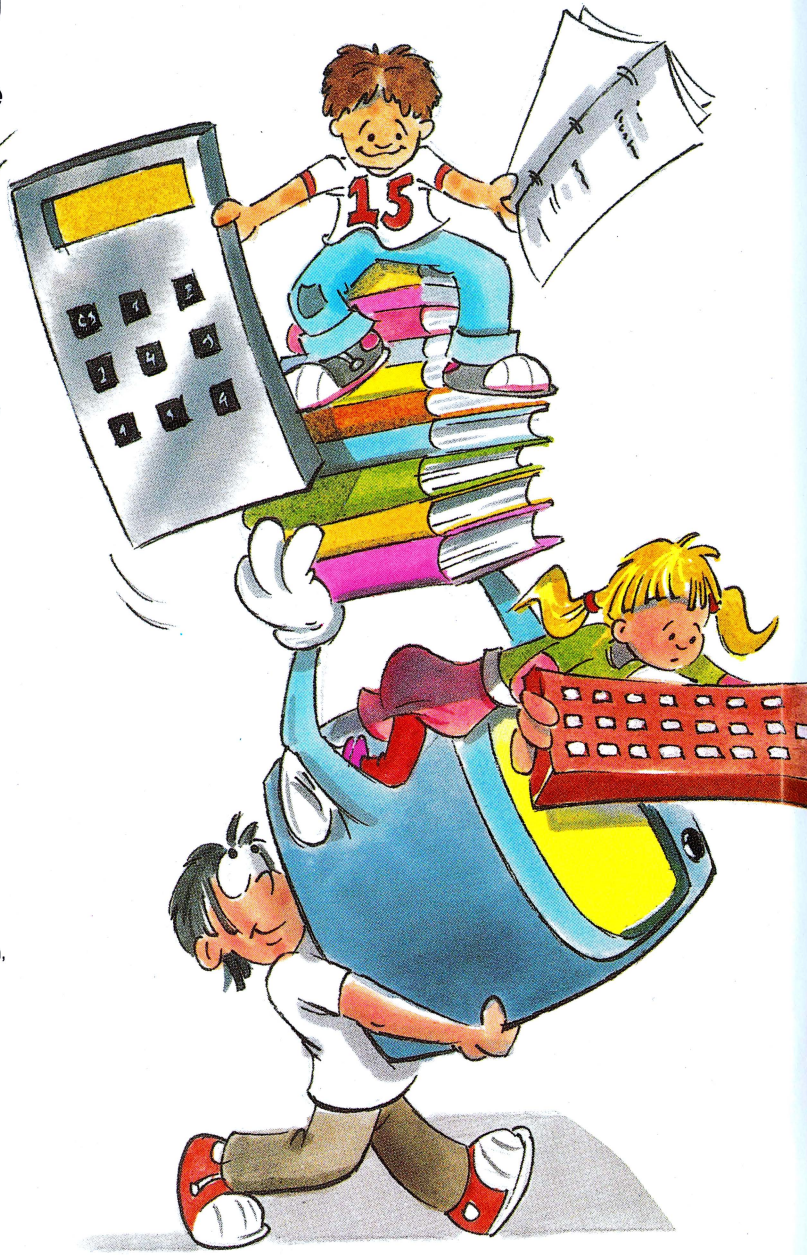
NOTE

The publisher and authors have made every effort to assure that the computer programs are accurate and complete. However, this publication is prepared for general readership, and neither the publisher nor the authors have any knowledge about or ability to control any third party's use of the programs and programming information. There is no warranty of representation by either the publisher or the authors that the programs or programming information in this book will enable the reader to achieve any particular result.

Copyright ©1985 by Hayes Publishing Ltd. All rights reserved. No part of this book may be reproduced or transmitted in any form or by any means, electronic or mechanical, including photocopying, recording or by any information storage system, without permission from the publisher.

ADAM is a registered trademark of Coleco.
Apple is a registered trademark of Apple Computers, Inc.
Atari is a registered trademark of Atari, Inc.
VIC 20, PET and Commodore 64 are all registered trademarks of Commodore Computer Systems.
TRS-80 Color Computer is a registered trademark of Radio Shack, Divison of Tandy Corporation.

Hayes Publishing Ltd., Burlington, Ontario



CONTENTS

About This Book 4
Starting Out 5
If Something Goes Wrong 6
Listing Programs 7
Saving Programs 8
Changes 9
Special Functions 10
Birthday Greetings 11
Birthday Facts 12
Homework Helper 15
Money Manager 18
Simple Graphics 22
Graphic Boxes 24
Graphic Dots 26
Ice Castles 27
Computer Fun 29
Maze Trap 30
Number Games 31
Hangman 33
Hi-Lo Game 34
Lost In Space 35
Adventure Time 36
Computer Jazz 38
Vic 20 and C64 Graphics 39
Apple Graphics 41
Atari Graphics 43
TRS-80 Graphics 46
Glossary 48

ABOUT THIS BOOK

In this book are lots of short fun computer programs that you can use and enjoy. There are programs to calculate your birthday, the age of your friends, your weight on the moon and more. There is also a section called Homework Helper. It will help you with your math problems. The programs for games like Hangman and Maze Maker will give you a chance to play against the computer.

While you only have to type in these programs to enjoy them, we also want you to become a super programmer. When you are typing in a program, try to decide what each line does. We will sometimes give you extra commands or tips to make the programs even better.

Of course now and again things do go wrong. It happens even to the best of programmers. You may misspell a word or miss a line. We will tell you how to correct errors.

If you want to keep the programs after you type them in, make sure you have a tape recorder or disk drive attached to your computer.

Now we are ready to begin with the computer.

Have fun!

STARTING UP

There are many types of computers. The programs in this book are written for these computers: Adam, Apple, Atari, Commodore 64, PET, TRS-80 Color Computer and VIC 20.

Make sure your computer is connected according to the instructions that came with it. Remember to connect a disk drive or tape recorder if you want to save the programs.

Now that your computer is set up, you are ready to begin. Turn on the screen and disk drive or cassette recorder, then turn on the computer.

The programs are written in the computer language BASIC. If you want to know more about this language, you should get another book in this series called Let's Look At BASIC.

BEFORE YOU ENTER ANY PROGRAM, ALWAYS TYPE IN:

NEW

This clears the computer's memory and gets it ready to accept a new program.

Notice the box on the screen (on some computers it may be flashing). This is called the cursor. The cursor shows you where you are typing. It is like the tip of a pen, and it moves as you write.

You are now ready to type in programs. Each program is a group of lines. Each line starts with a number. Type the number and what follows until you come to the end of the line. Now press RETURN (or ENTER) and start the next line.

Once you have entered a program, type the word RUN and press the key marked RETURN (or ENTER). This will start the program.

IF SOMETHING GOES WRONG

It is very easy to make mistakes when typing. If a program does not work you have probably mistyped something. Mistakes in programs are called bugs. The computer will tell you when it has found a bug.

Watch the screen carefully as you type to see if the computer has any problems with what you type. Atari computers will find most bugs before you type RUN. Other computers will wait until after you try to start the program with RUN.

Type in this program. Press RETURN or ENTER at the end of each line:

```
10 PRIN"HELLO THERE"
20 PRINT"HOW ARE YOU TODAY?"
```

Start the program. Do you remember how to start the program? The computer will give you a message like:

SYNTAX ERROR IN 10

This is called an error message. The computer is telling you that there is a mistake in line number 10. Type in:

LIST 10 - press RETURN or ENTER.

Line 10 should look like this:

```
10 PRINT"HELLO THERE"
```

Simply retype the line.
Most often people confuse the number one 1 with the letter I. It is also easy to confuse the number zero Ø with the letter O. Another common mistake is incorrect punctuation or too many or too few brackets.
If the program still does not work you will have to look through all the program lines to see that you haven't missed any parts. To see the program type:

```
LIST
```

If part of the program goes off the screen you will have to LIST the program in parts. To see lines 10 to 100 type:

```
LIST 10-100
```

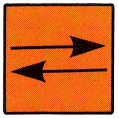
If you have an ATARI type:

```
LIST 10,100
```

Look through the program carefully to make sure you haven't missed any lines or parts of lines.

CURSOR KEYS

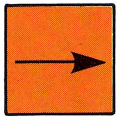
UP AND DOWN



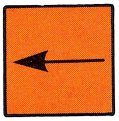
LEFT AND RIGHT

UP

DOWN



RIGHT



LEFT

Does your computer have keys marked with arrows? These are called CURSOR KEYS.
Cursor keys are used to move you through a line that has already been typed in. This allows you to make changes wherever you need to in the line. Check your manual to see what cursor keys your computer has, then look to see what they can do!

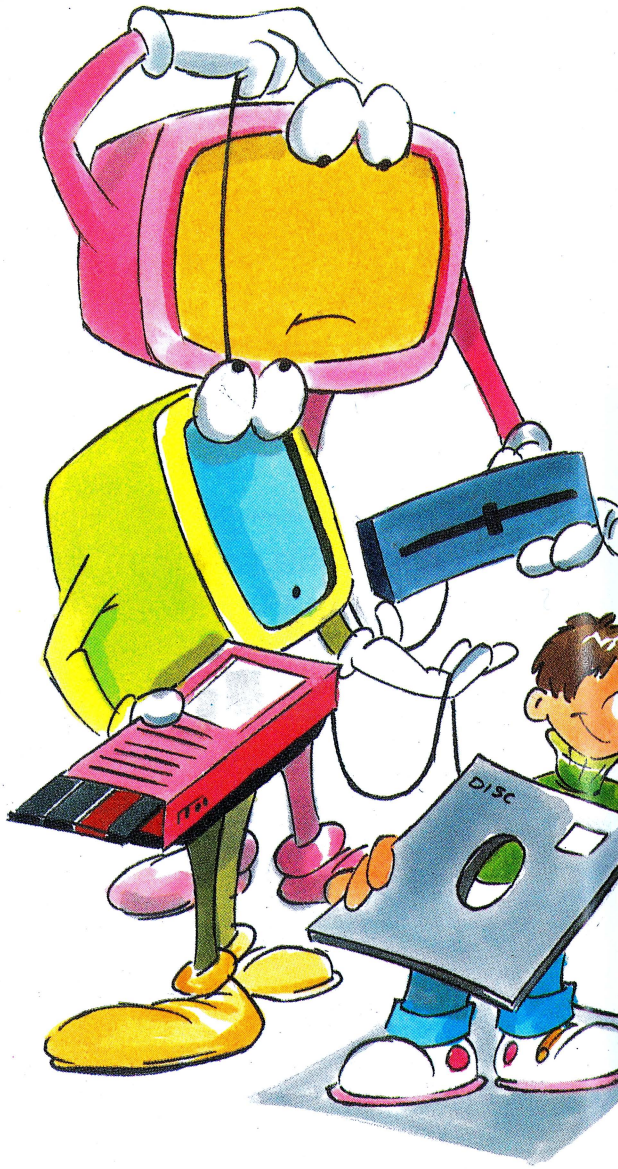
KEEPING PROGRAMS

After you have a program that works, you will probably want to keep it so you may use it again. Your program may be stored on a disk or audio cassette depending on what equipment you have. To use a disk, your computer must be connected to a floppy disk drive. To use a cassette, your computer must be connected to a tape recorder.

Let's enter a SAVE program. First type.
NEW
Now enter these lines.

```
1Ø PRINT"HELLO"
2Ø PRINT"I AM YOUR COMPUTER"
3Ø PRINT"AND I SERVE YOU"
```

Check your owners manual to find the SAVE command for your computer.

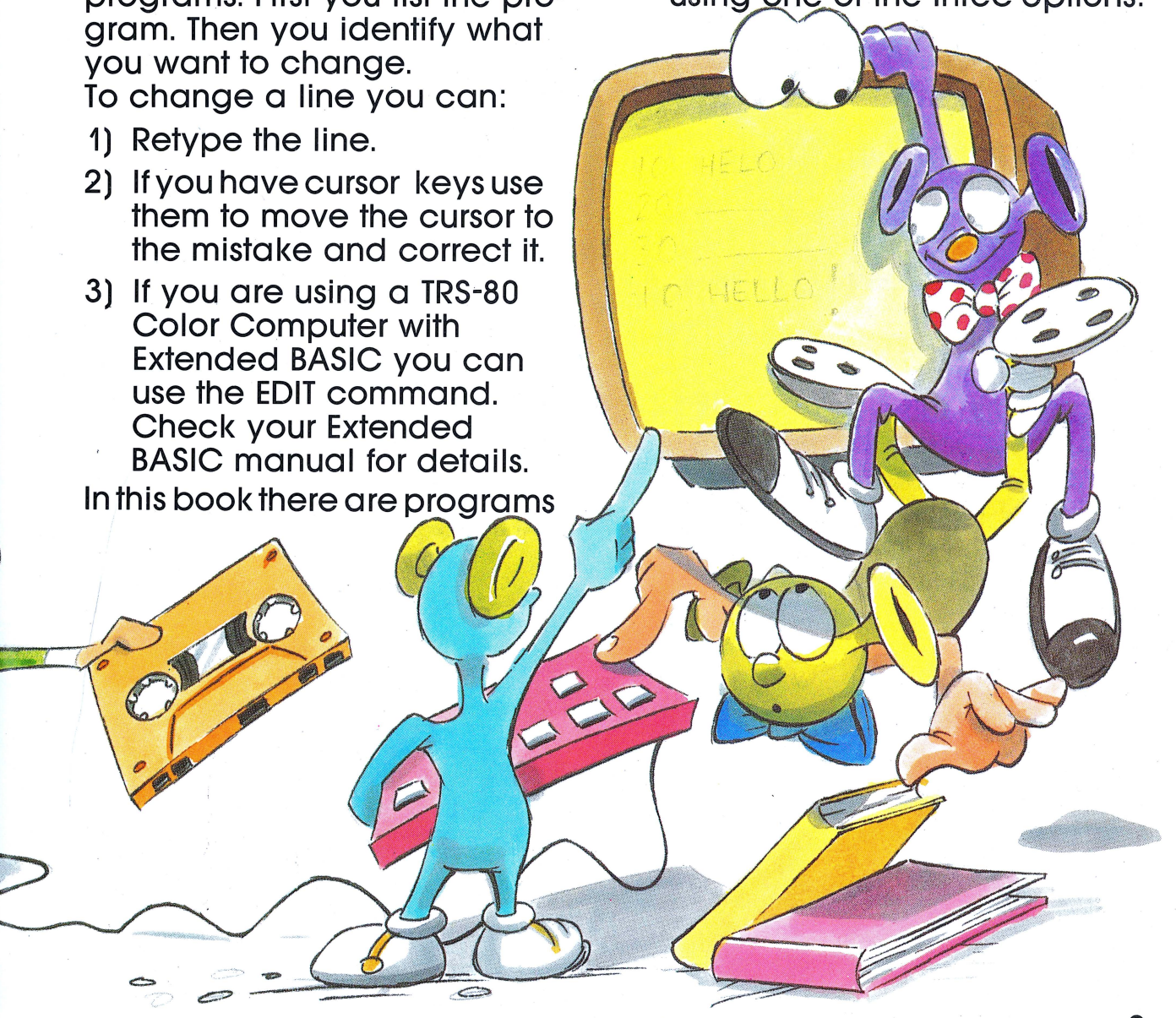


CHANGES

You can make changes to programs. First you list the program. Then you identify what you want to change.
To change a line you can:

1) Retype the line.
2) If you have cursor keys use them to move the cursor to the mistake and correct it.
3) If you are using a TRS-80 Color Computer with Extended BASIC you can use the EDIT command. Check your Extended BASIC manual for details.

In this book there are programs for you to enter. If you make a mistake like a spelling error or leaving out a period, list the line and make the correction using one of the three options.



SPECIAL KEY

When the computer keeps RUNning a program, there is a key to make it stop. Each computer has its own STOP key. Check to the right to find the right key for your computer.

CTRL and C	ADAM and APPLE
BREAK	ATARI and TRS-80 CoCo
RUN	COMMODORE 64, PET and VIC

SPECIAL WORD

Every home computer has a way of clearing the screen. The programs in this book look much neater when they have a line at the beginning to clear the screen. To clear the screen, simply add the proper line for your computer to all the programs.

ADAM OR APPLE	1 HOME
ATARI	1 ? CHR$ (125)
COMMODORE	1 ? CHR$ (147)
RADIO SHACK	1 CLS

BIRTHDAY GREETINGS

Let's make the computer do some work for us. We will write a program that creates a birthday message.

```
120 FOR I=1 TO 7
130 PRINT
140 NEXT I
160 PRINT:PRINT"HAPPY BIRTHDAY JOHN!"
200 FOR I=1TO 20:NEXT I
210 GOTO120
```

It may not be John that you want to wish a Happy Birthday, but you can change the name to whomever you want.

DO YOU REMEMBER HOW TO CHANGE LINES?

Try making these changes. What happens to the Birthday message now?

```
150 FOR I=1 TO 3
170 NEXT I
```

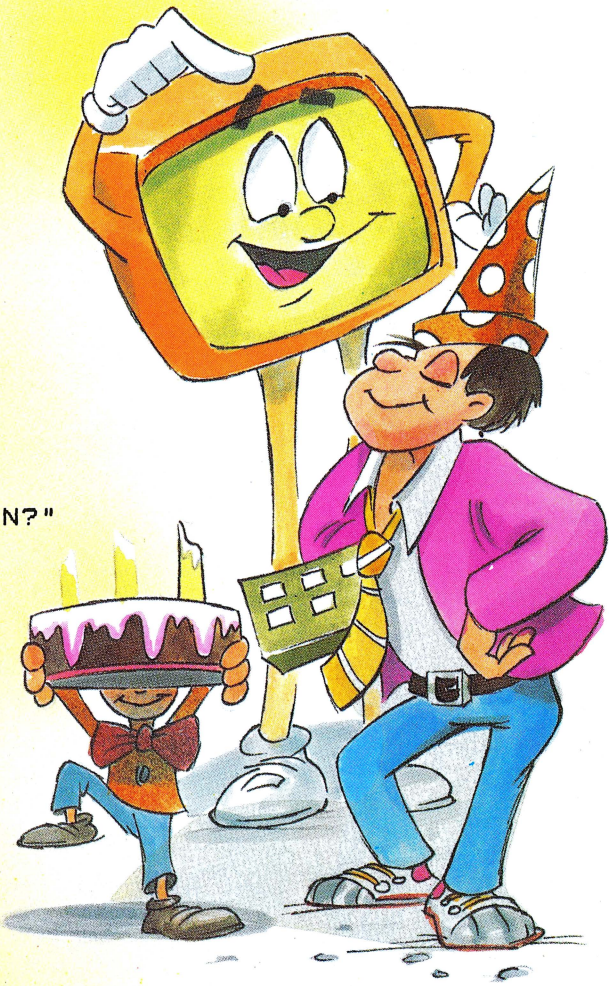
To make the display even more interesting add this line.

```
165 PRINT"--------------------
```

REMEMBER TO START WITH NEW

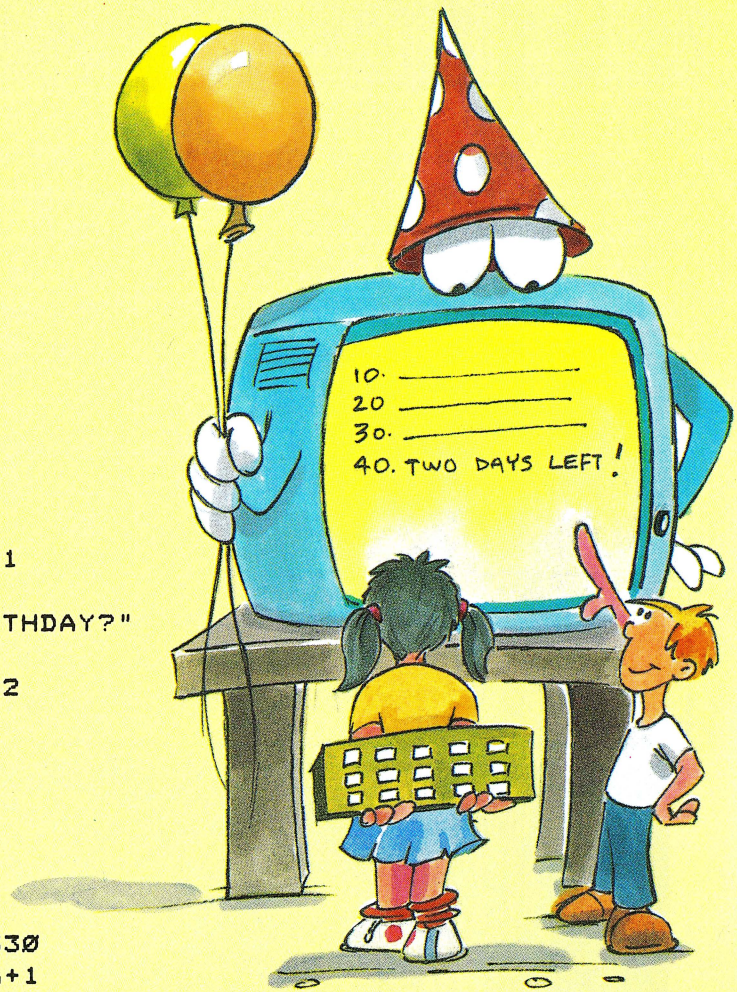
BIRTHDAY FACTS

Not only can the computer write Birthday greetings, it can also tell you some facts that will make your birthday even more interesting! With the next program you tell the computer the date today and your birthdate; the computer will tell you exactly how old you are, to the day!



```
100 DIM N(12)
110 FOR I=1 TO 12
120 READT:N(I)=T
130 NEXT I
140 PRINT"WHAT'S TODAY'S DATE?"
150 PRINT"DAY (1-31)":INPUT D1
160 PRINT"MONTH (1-12)":INPUT M1
170 PRINT"YEAR":INPUT Y1
180 PRINT:PRINT"WHEN WERE YOU BORN?"
190 PRINT"DAY (1-31)":INPUT D2
200 PRINT"MONTH (1-12)":INPUT M2
210 PRINT"YEAR":INPUT Y2
220 DA=D1-D2
230 MA=M1-M2
240 YA=Y1-Y2
250 IF DA => 0 THEN 280
260 DA=DA+N(M1)
270 MA=MA-1
280 IF MA => 0 THEN 310
290 MA=MA+12
300 YA=YA-1
310 IF YA/4 <> INT(YA/4) THEN 330
320 IF M1=3 AND M2=2 THEN DA=DA+1
330 PRINT:PRINT"YOUR AGE IS"
340 PRINT:PRINTYA;" YEARS ":PRINTMA" MONTHS ":PRINTDA" DAYS"
350 DATA 31,31,28,31,30,31
360 DATA 30,31,31,30,31,30
```

If the computer can tell you how old you are, it should be able to figure out other important things - like how long you have to wait until your next birthday. Key in this next program to find out.



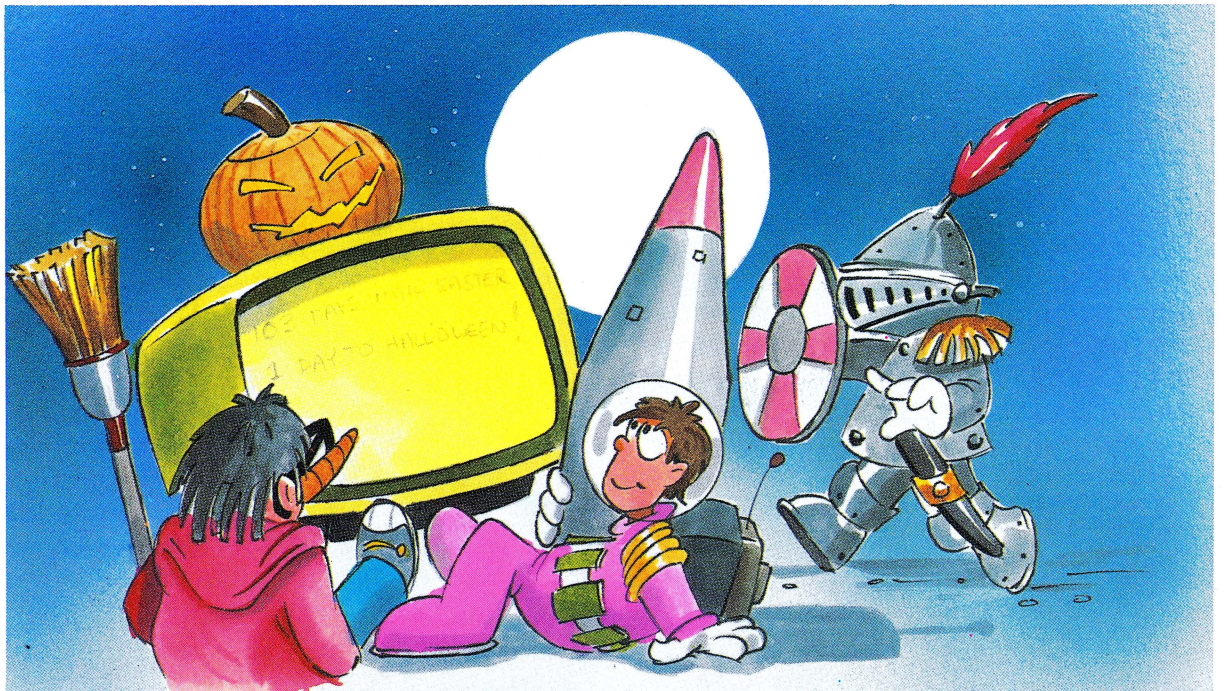

```
100 DIM N(12)
110 FOR I=1 TO 12
120 READT:N(I)=T
130 NEXT I
140 PRINT"WHAT'S TODAY'S DATE?"
150 PRINT"DAY (1-31)":INPUT D1
160 PRINT"MONTH (1-12)":INPUT M1
170 PRINT"YEAR":INPUT Y1
180 PRINT:PRINT"WHEN'S YOUR BIRTHDAY?"
190 PRINT"DAY (1-31)":INPUT D2
200 PRINT"MONTH (1-12)":INPUT M2
220 DA=D2-D1
230 MA=M2-M1
250 IF DA => 0 THEN 280
260 DA=DA+N(M1)
270 MA=MA-1
280 IF MA => 0 THEN 310
290 MA=MA+12
310 IF Y1/4 <> INT(Y1/4) THEN 330
320 IF M1=3 AND M2=2 THEN DA=DA+1
330 PRINT:PRINT
340 IF MA=0 AND DA=0 THEN PRINT"YOUR BIRTHDAY IS TODAY!!!":END
350 PRINT:PRINT"YOUR NEXT BIRTHDAY IS IN":PRINT:PRINT
360 PRINTMA;" MONTHS ";DA;" DAYS"
370 DATA 31,31,28,31,30,31
380 DATA 30,31,31,30,31,30
```

DATE FACTS

The other big day we all count the days till is Christmas. If you want to know how many days are left to wait, just tell the computer the date of Christmas (25/12) when it asks you when your birthday is, and it will give you your answer. You can use this program to find out the number of days left until any big day like Halloween, Easter or a special day of your own.

You can change the program to include any date by changing line 180 from 'WHEN'S YOUR BIRTHDAY?' to 'WHEN'S THE BIG DAY?'. There are two other lines in this program that need to be changed. Can you find them?

Hint: You just need to change what the computer PRINTS on the screen. In your program you tell the computer what to print by putting it between quotation marks (" ").



HOMEWORK HELPER

Your computer can be a great friend. It will do whatever you ask without any complaints - as long as you ask it correctly!

Addition, subtraction, multiplication and division are all a cinch for the computer. On the next three pages are programs for each of these math problems. Choose the programs that solve the problems you are now learning in school.

ADDITION

This first program asks for two numbers and adds them for you.

```
100 PRINT:PRINT"PROGRAM TO ADD TWO":PRINT"NUMBERS"
120 PRINT:PRINT"FIRST NUMBER":INPUT N1
130 PRINT:PRINT"SECOND NUMBER":INPUT N2
140 N=N1+N2
150 PRINT:PRINTN1;"+";N2;"=";N
```

Do you have more than two numbers to add? Well, the computer can add as many numbers as you want. Try this program.

```
100 PRINT:PRINT"PROGRAM TO ADD NUMBERS"
110 N=0
120 PRINT:PRINT"HOW MANY NUMBERS DO YOU HAVE":INPUT M
130 FOR I=1 TO M
140 PRINT:PRINT"ENTER NUMBER ";I
150 INPUT N1
160 N=N+N1
170 NEXT I
180 PRINT:PRINT"THE TOTAL SUM IS ";N
```

SUBTRACTION

The computer will also do subtraction problems. In this program the computer will ask for two numbers. It will then subtract the second number from the first.

```
100 PRINT:PRINT"PROGRAM TO SUBTRACT":PRINT"TWO NUMBERS"
120 PRINT:PRINT"FIRST NUMBER":INPUT N1
130 PRINT:PRINT"SECOND NUMBER":INPUT N2
140 N=N1-N2
150 PRINT:PRINTN1;"-";N2;"=";N
```

MULTIPLY

Here is a program you can use if you know how to multiply. The computer can multiply any two numbers for you whether they are big or small!

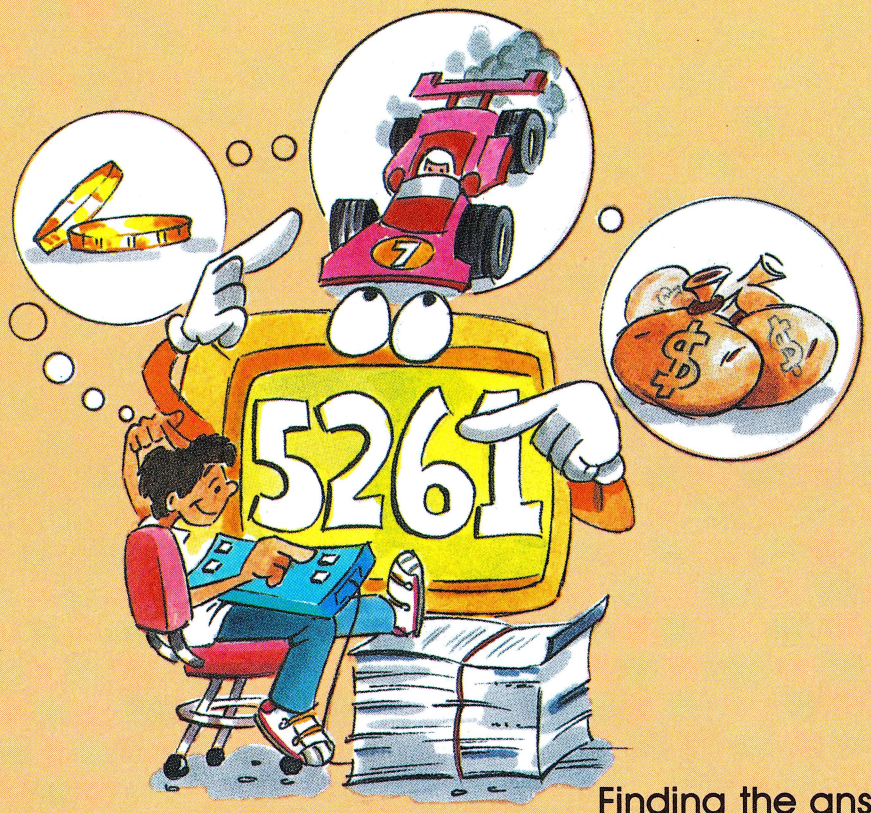
```
100 PRINT:PRINT"PROGRAM TO MULTIPLY":PRINT"TWO NUMBERS"
120 PRINT:PRINT"FIRST NUMBER":INPUT N1
130 PRINT:PRINT"SECOND NUMBER":INPUT N2
140 N=N1*N2
150 PRINT:PRINTN1;"*";N2;"=";N
```

DIVISION

When you start dividing, math problems get a little bit tricky. Now you have two things to worry about - a quotient and remainder. This program will find both the answers for you. Just tell the computer the dividend (the number you are dividing into) and the divisor (the number you divide with). The computer will do the work and tell you both the quotient and the remainder.

```
100 PRINT:PRINT"PROGRAM TO DO DIVISION"
110 PRINT:PRINT"DIVIDEND":INPUT DD
120 PRINT:PRINT"DIVISOR":INPUT DS
130 Q=INT(DD/DS)
140 R=DD-Q*DS
150 PRINT:PRINTDD;" / ";DS
160 PRINT"HAS A QUOTIENT OF ";Q
170 PRINT"AND A REMAINDER OF ";R
```

MONEY MANAGER



Do your parents give you an allowance or do you have a job like a paper route? What do you do with the money you earn? Are you saving for something special? How long will it take?

Finding the answers to these questions is called budgeting. This program will help you to make your own budget. You tell the computer how much money you make in a week, what you want to buy and how much it costs. The computer will tell you how many weeks you will have to save your money before you can buy it.

```
10 DIMB$(50)
100 PRINT:PRINT"SAVING MONEY"
110 PRINT:PRINT"HOW MUCH MONEY DO YOU"
115 PRINT"RECEIVE EACH WEEK?"
120 INPUT M
130 PRINT:PRINT"WHAT WOULD YOU LIKE TO BUY?"
140 INPUT B$
150 PRINT:PRINT"HOW MUCH DOES A ":PRINTB$;" COST?"
160 INPUT C
170 W=INT(C/M+.5)
180 IF C>W*M THEN W=W+1
190 PRINT"IN ";W;" WEEKS"
200 PRINT"YOU WILL BE ABLE TO":PRINT"BUY YOURSELF A"
210 PRINTB$
```

Do you spend some of the money you earn each week? Most people do not save every penny they make. There is always a few little things you have to spend money on. This program includes the money you spend when it computes your total saving time.

```
10 DIMB$(50)
100 PRINT:PRINT"SAVING MONEY"
110 PRINT:PRINT"HOW MUCH MONEY DO YOU"
115 PRINT:PRINT"RECEIVE EACH WEEK?"
120 INPUT M
124 PRINT:PRINT"HOW MUCH DO YOU SPEND":PRINT"EACH WEEK?"
126 INPUT S
130 PRINT:PRINT"WHAT WOULD YOU LIKE TO BUY?"
140 INPUT B$
150 PRINT:PRINT"HOW MUCH DOES A ":PRINTB$;" COST?"
160 INPUT C
170 W=INT(C/(M-S)+.5)
180 IF C>W*(M-S) THEN W=W+1
190 PRINT"IN ";W;" WEEKS"
200 PRINT"YOU WILL BE ABLE TO":PRINT"BUY YOURSELF A"
210 PRINTB$
```

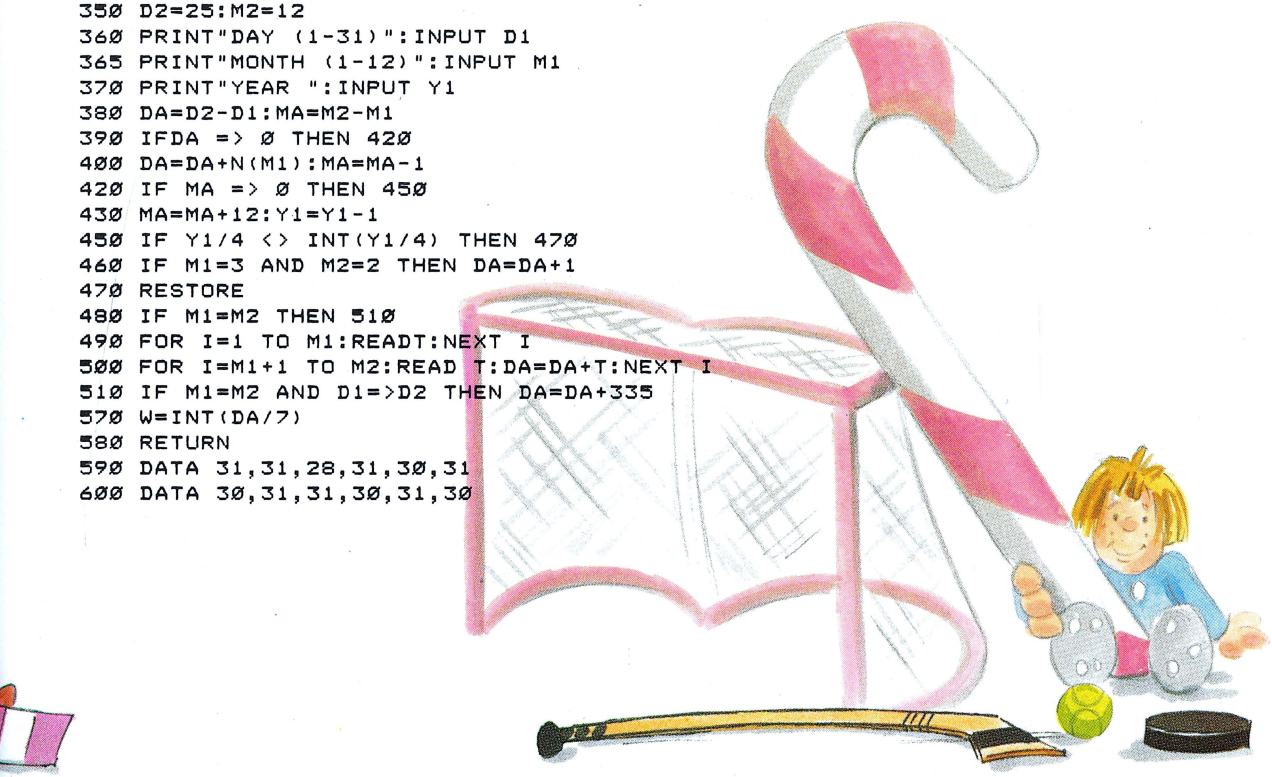
CHRISTMAS PLANNER

You better watch out; you better not pout. Christmas is coming. So it's time to save your money to buy your family their Christmas presents. Add these lines to the last program (Money manager 2). In addition to the original questions, it will ask how much you want to spend on everyone's Christmas gift. The computer will tell you how many weeks it will take to save enough money.

```
100 PRINT:PRINT"CHRISTMAS PLANNING"
110 PRINT:PRINT"HOW MUCH MONEY DO YOU"
115 PRINT"RECEIVE EACH WEEK?"
120 INPUT M
124 PRINT:PRINT"HOW MUCH DO YOU SPEND":PRINT"EACH WEEK?"
126 INPUT S
130 PRINT:PRINT"HOW MANY CHRISTMAS":PRINT"PRESENTS"
134 PRINT"ARE YOU BUYING?"
136 INPUTN
140 PRINT:PRINT"HOW MUCH DO YOU WANT TO"
150 PRINT"SPEND ON EACH PRESENT"
160 INPUT C
170 W=INT((C*N)/(M-S)+.5)
180 IF (C*N)>W*(M-S) THEN W=W+1
190 PRINT"IN ";W;" WEEKS"
200 PRINT"YOU WILL HAVE ENOUGH":PRINT"MONEY"
210 PRINT"FOR ALL YOUR CHRISTMAS PRESENTS"
```

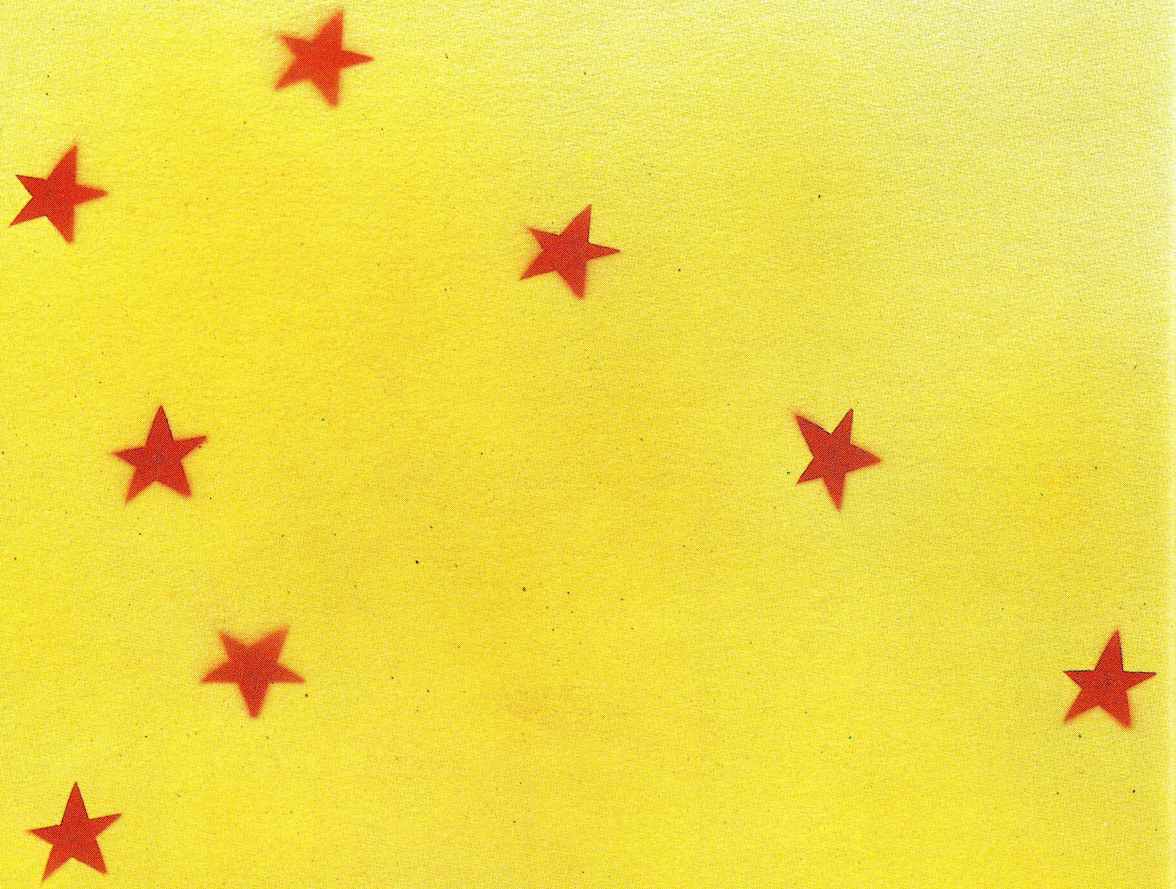
Perhaps you don't have enough time to save the money. This program will tell you how much you can spend on each gift. It asks the usual questions about your income and also the date.

```
10 PRINT:PRINT"CHRISTMAS PLANNING"
100 GOSUB300
110 PRINT:PRINT"HOW MUCH MONEY DO YOU"
115 PRINT"RECEIVE EACH WEEK?"
120 INPUT M
124 PRINT:PRINT"HOW MUCH DO YOU SPEND EACH WEEK?"
126 INPUT S
130 PRINT:PRINT"HOW MANY CHRISTMAS":PRINT"PRESENTS"
134 PRINT"ARE YOU BUYING?"
136 INPUTN
170 C=INT(((M-S)*W)/N*100)/100
190 PRINT"THERE ARE ";W:PRINT"WEEKS UNTIL CHRISTMAS"
200 PRINT"YOU CAN SPEND":PRINT"$";C;" PER PRESENT"
210 END
300 DIM N(12)
310 FORI=1TO12:READ T:N(I)=T:NEXT I
340 PRINT"WHAT'S TODAY'S DATE?"
350 D2=25:M2=12
360 PRINT"DAY (1-31)":INPUT D1
365 PRINT"MONTH (1-12)":INPUT M1
370 PRINT"YEAR ":INPUT Y1
380 DA=D2-D1:MA=M2-M1
390 IFDA => 0 THEN 420
400 DA=DA+N(M1):MA=MA-1
420 IF MA => 0 THEN 450
430 MA=MA+12:Y1=Y1-1
450 IF Y1/4 <> INT(Y1/4) THEN 470
460 IF M1=3 AND M2=2 THEN DA=DA+1
470 RESTORE
480 IF M1=M2 THEN 510
490 FOR I=1 TO M1:READT:NEXT I
500 FOR I=M1+1 TO M2:READ T:DA=DA+T:NEXT I
510 IF M1=M2 AND D1=>D2 THEN DA=DA+335
570 W=INT(DA/7)
580 RETURN
590 DATA 31,31,28,31,30,31
600 DATA 30,31,31,30,31,30
```



GRAPHICS

GRAPHICS are patterns, pictures or designs. Your computer can create graphic patterns on the screen - if you tell it what to do. The programs on these pages start with simple graphics and then get fancy!



This first program will put a line of stars from the top left of the screen to the bottom right.

```
100 FORI=1TO20
110 FORJ=1TOI:PRINTCHR$(32);:NEXTJ:PRINT"*"
120 NEXTI
```

If you add these lines, the line of stars will go back across the screen to the left.

```
130 FORI=20TO1 STEP-1
140 FORJ=1TOI:PRINTCHR$(32);:NEXTJ:PRINT"*"
150 NEXTI
```

How about having the line go back and forth until you tell it to stop? Just add this line.

```
200 GOTO100
```

MORE GRAPHICS

Now we'll really get into some heavy duty graphics. Since every computer has its own way of making graphics, there are separate programs for each computer.

We'll start with some flashing boxes. Type in the program for your computer.

APPLE AND ADAM

```
100  GR
110 X =  INT ( RND (1) * 40)
120 Y =  INT ( RND (1) * 40)
130  COLOR=  INT ( RND (1) * 16)
140  PLOT X,Y
150  GOTO 110
```

ATARI

```
100 GRAPHICS 3
110 X=INT(RND(1)*39)
120 Y=INT(RND(1)*19)
130 COLOR INT(RND(1)*4)
140 PLOT X,Y
150 GOTO 110
```

TRS-80

```
100 CLS(0)
110 X=RND(63)
120 Y=RND(31)
130 C=RND(8)
140 SET(X,Y,C)
150 GOTO110
```

C64

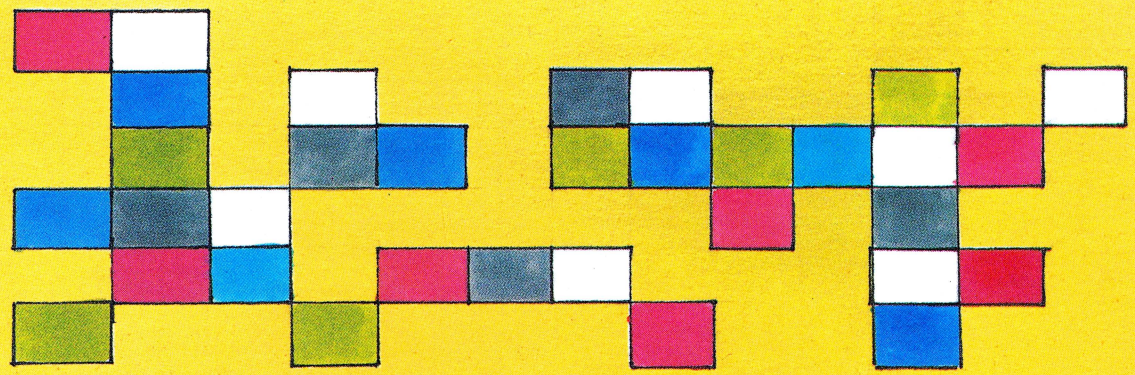
```
1000 PRINT CHR$(147)
1010 P=RND(1)*1001:C=RND(1)*17
1020 POKE1024+P,160:POKE55296+P,C
1030 GOTO1010
```

VIC

```
100 PRINT CHR$(147)
105 CC=37888+4*(PEEK(36866)AND128)
    :S=PEEK(648)*256
110 P=RND(1)*507:C=RND(1)*17
120 POKE S+P,160:POKE CC+P,C
130 GOTO110
```

PET

```
1000 PRINTCHR$(147)
1010 P=RND(1)*1001
1020 POKE32768+P,32+128*(RND(1)*1)
1030 GOTO1010
```



DOTS

Let's make the boxes very small. We'll make them so small that they are really dots. If you have a Commodore computer turn to page 30 with Maze Trap.

APPLE AND ADAM

```
100   HGR2
110 X =   INT ( RND (1) * 280)
120 Y =   INT ( RND (1) * 192)
130   COLOR=   INT ( RND (1) * 8)
140   HPLOT X,Y
150   GOTO 110
```

ATARI

```
100 GRAPHICS 7
110 X=INT(RND(1)*160)
120 Y=INT(RND(1)*80)
130 COLOR INT(RND(1)*4)
140 PLOT X,Y
150 GOTO 110
```

TRS-80

```
100 PMODE3,1:SCREEN3,1:PCLS
110 X=RND(255)
120 Y=RND(191)
130 C=RND(8)
140 PSET(X,Y,C)
150 GOTO110
```

ICE CASTLES

This next program only works for the Apple, Adam, Atari and TRS-80 Color Computers with Extended Basic. This graphic pattern builds Ice Castles on your screen!

When you run this program the computer will ask you for a distance. Pick any number from 1 to 100. Try this program a few times using different numbers to see the difference in the pattern.

APPLE AND ADAM

```
100  HOME
110  INPUT "DISTANCE? ";FAC
120  HGR2 : HCOLOR= 7
130  FOR I = Ø TO 191: HPLOT Ø,I TO 279,I: NEXT
140  HCOLOR= Ø
150  HPLOT X,Y
160  FOR X = Ø TO 279:Y = Y +  INT ( RND (1) * (2 * FAC + 1) - FAC)
170  IF Y < Ø THEN Y = Ø
180  IF Y > 191 THEN Y = 191
190  HPLOT  TO X,Y
200  IF JK = Ø THEN  HPLOT  TO X,Ø TO X,Y
210  NEXT
220 JK = JK + 1: HPLOT Ø,Y: GOTO 160
```

ATARI

```
100 ? CHR$(125)
110 PRINT "DISTANCE";
115 INPUT FAC
120 GRAPHICS 7:COLOR 1
130 FOR I=0 TO 79:PLOT 0,I:DRAWTO 159,I:NEXT I
140 COLOR 0
150 PLOT X,Y
160 FOR X=0 TO 159:Y=Y+INT(RND(1)*(2*FAC+1)-FAC)
170 IF Y<0 THEN Y=0
180 IF Y>79 THEN Y=79
190 DRAWTO X,Y
200 IF JK=0 THEN DRAWTO X,0:DRAWTO X,Y
210 NEXT X
220 JK=JK+1:PLOT 0,Y:GOTO 160
```

TRS-80

COLOR COMPUTER WITH EXTENDED BASIC PROGRAM

```
100 CLS
110 INPUT"DISTANCE";FAC
120 PMODE3,1:SCREEN3,1:PCLS:COLOR1,3
130 FORI=0TO191:LINE(0,I)-(256,I),PSET:NEXTI
140 COLOR2,3
150 PSET(X,Y,2)
155 X1=X:Y1=Y
160 FORX=0TO256:Y=Y+RND(2*FAC)-FAC
170 IF Y<0THENY=0
180 IFY>191THENY=191
190 LINE(X1,Y1)-(X,Y),PSET
200 IF JK=0THEN LINE(X,0)-(X,Y),PSET
205 X1=X:Y1=Y
210 NEXTX
220 JK=JK+1:PSET(0,Y,2):X1=0:GOTO160
```

COMPUTER FUN

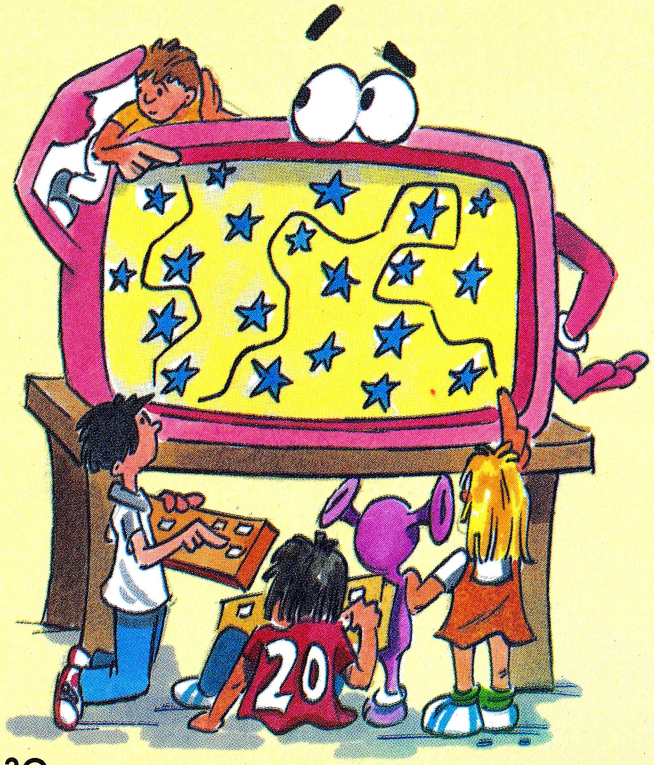
Now that you know some of the practical things your computer can do, let's move on to the fun stuff! Computer games are quite exciting, whether you're playing against the computer or with a friend. There are six games in this section. Remember to type NEW when you begin to program each new game. Have fun!

MAZE TRAP

This simple program will draw a maze on the screen. Stop the computer when you have a full screen of *. You must trace a path from the top left down to the bottom right of the screen. If you have a TRS-80 Color Computer use the program on the right.

MAZE PROGRAM

```
100 DIMA$(1)
110 FORI=1TO1000
120 IFRND(1)*10>8THENPRINT"*";
130 PRINT" ";
140 NEXTI
150 GETA$:IFA$=""THEN150
```



TRS-80

```
110 FORI=1TO1000
120 IFRND(10)>8THENPRINT"*";
130 PRINT" ";
140 NEXTI
150 A$=INKEY$:IFA$=""THEN150
```

Every time you run this program the computer will draw a new maze. Do you want to make it harder on yourself? Try changing the 10 in line 120 to a larger number.

NUMBER GAMES

How well do you know your numbers? Sure you probably know the simple 1,2,3 stuff; maybe you even know them backwards (3,2,1). But are you up to handling this number game? The computer will tell you 5 numbers which form a pattern. Can you guess the next number? TRS-80 Color Computer users enter the lines on the next page instead of lines 130 and 140.

GUESS PROGRAM

```
110 PRINT"HERE ARE SOME NUMBERS"
120 PRINT"YOU TRY TO GUESS THE":PRINT"NEXT NUMBER"
130 A=INT(RND(1)*5+1)
140 CD=INT(RND(1)*10+1)
160 FORI=1TO5
170 N=A+I*CD
180 PRINTN
190 NEXTI
200 N=A+I*CD
210 PRINT"WHAT'S THE NEXT NUMBER"
220 INPUT G
230 IF G=N THENPRINT"VERY GOOD!":PRINT"YOU GOT IT!"
240 IF G<>N THENPRINT"SORRY...IT WAS ";N
```

TRS-80

```
130 A=RND(5)
140 CD=RND(10)
```

So, you think that was too easy! Well, you will never get the next number with this program.

GUESS PROGRAM 2

```
110 PRINT"HERE ARE SOME NUMBERS"
120 PRINT"YOU TRY TO GUESS THE":PRINT"NEXT NUMBER"
130 M=INT(RND(1)*5+1)
140 CR=INT(RND(1)*5+1)
160 FORI=1TO5
170 N=INT(M*CR^I+.5)
180 PRINTN
190 NEXTI
200 N=INT(M*CR^I+.5)
210 PRINT"WHAT'S THE NEXT NUMBER"
220 INPUT G
230 IF G=N THENPRINT"VERY GOOD!":PRINT"YOU GOT IT!"
240 IF G<>N THENPRINT"SORRY...IT WAS ";N
```

TRS-80

```
130 M=RND(5)
140 CR=RND(5)
```

Use the top arrow key to make this symbol ▲ on TRS-80, VIC 20 and C64 computers.

HANGMAN

You have probably played Hangman with your friends or family. Well now the computer can join in too. The computer makes a great referee for two people playing Hangman.

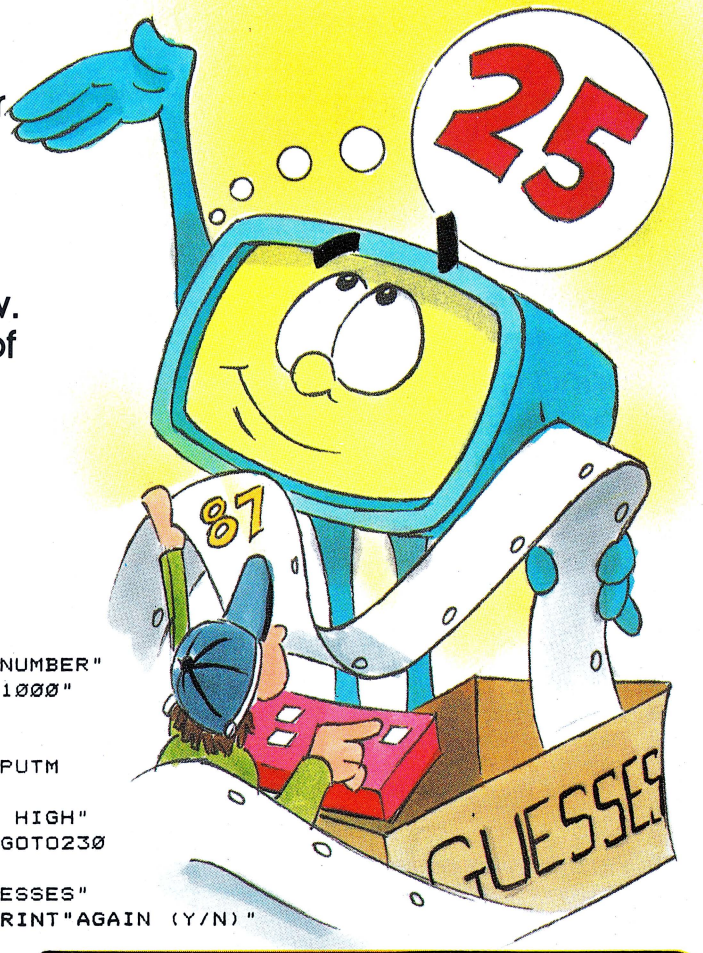
Type in the program and RUN it. Have one person type in their word, while the other closes their eyes. After the word has been entered the computer will display a dash – for each letter in the word. As the person guesses the letters, the dashes will be replaced with correct letters. Incorrect letters cost a guess each. The person guessing may enter the entire word if they like instead of a letter. If you have an ATARI do not enter the lines on the left marked A. Instead enter the lines on the right.

```
5 DIM W(20)
100 PRINT"HANGMAN"
110 PRINT:PRINT"PLAYER ONE CLOSE YOUR EYES"
120 PRINT:PRINT"PLAYER TWO TYPE IN":PRINT"YOUR WORD"
130 INPUT W$
140 FOR K=1 TO 25:PRINT:NEXT K
150 PRINT
160 W=LEN(W$)
170 FOR I=1 TO 6
180 PRINT"THE WORD HAS ":PRINTW;" LETTERS":PRINT
200 FOR J=1 TO W
205 IF W(J)=1 THEN PRINTMID$(W$,J,1);:GOTO220
210 PRINT"-";
220 NEXT J
225 PRINT:PRINT:PRINT"FREE GUESSES LEFT=";7-I
230 PRINT:PRINT"WHAT DO YOU GUESS"
240 INPUT G$
250 IF G$=W$ THEN PRINT"VERY GOOD!":PRINT"YOU GOT IT!":GOTO 320
255 F=0
260 FOR J=1 TO W
270 IF MID$(W$,J,1)=G$ AND F=0 THEN I=I-1
275 IF MID$(W$,J,1)=G$ THEN W(J)=1:G=G+1:F=1
280 NEXT J
290 IF G=W THENPRINT"VERY GOOD!":PRINT"YOU GOT IT!":GOTO 320
300 NEXT I
310 PRINT"YOU HAVE BEEN HANGED!"
320 PRINT"THE WORD WAS ";W$
330 END
```

```
5 DIM W$(20),G$(20),W(20)
10 FOR I=1 TO 20:W(I)=0:NEXT I
140 PRINT CHR$(125)
205 IF W(J)=1 THEN PRINT W$(J,J);:GOTO 220
270 IF W$(J,J)=G$ AND F=0 THEN I=I-1
275 IF W$(J,J)=G$ THEN W(J)=1:G=G+1:F=1
```

HI-LO GAME

Can you outguess the computer? After you enter and RUN this program, the computer will think of a number between one and one thousand. You must guess the number. The computer will tell you whether your guess is too high or too low. There is no limit to the number of guesses you take. TRS-80 Color Computer users enter the line 160 as shown.



HI-LO PROGRAM

```
120 DIM R$(1)
140 PRINT:PRINT"I AM THINKING  OF  A  NUMBER"
150 PRINT:PRINT"IT IS BETWEEN  1 AND  1000"
160 N=INT(RND(1)*1000+1):G=0
170 G=G+1
180 PRINT:PRINT"WHAT IS YOUR GUESS":INPUTM
190 IFM<NTHENPRINT"YOUR GUESS IS LOW"
200 IFM>NTHENPRINT:PRINT"YOUR GUESS IS HIGH"
210 IFM=NTHENPRINT:PRINT"YOU GOT IT!":GOTO230
220 GOTO170
230 PRINT:PRINT"YOU TOOK ":PRINTG;" GUESSES"
240 PRINT:PRINT"DO YOU WANT TO PLAY":PRINT"AGAIN (Y/N)"
250 INPUTR$
260 IFR$="Y"THEN 160
270 IFR$="N"THEN END
280 GOTO240
```

TRS-80

```
160 N=RND(1000):G=0
```

HINT: Try picking numbers that are halfway between the highest possible number and the lowest possible number. For example, when you start make your first guess 500. If the computer says this is too high, try 250. Keep doing this until you get the number. By guessing this way you always reduce the numbers remaining in half.

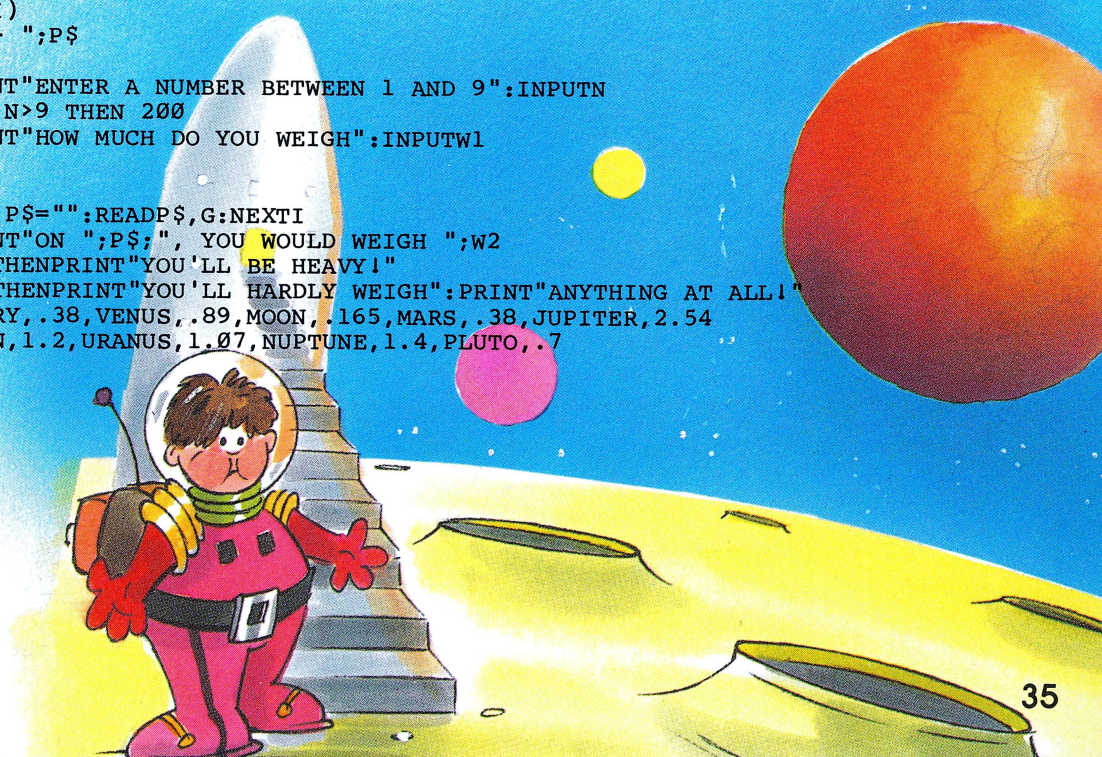
LOST IN SPACE

Are you planning on leaving the Earth? Perhaps you'll be going to the moon or one of the other planets in the solar system. If you do, your weight will change! On the moon you will weigh less; on Jupiter you wouldn't be able to stand up! Of course, when you come back to Earth you will weigh the same as before.

To find how much you will weigh on the moon or any of the other planets in the solar system, enter and RUN this program.

You can even find out how much you'll weigh on the sun! But we don't advise spending too much of your vacation time there.

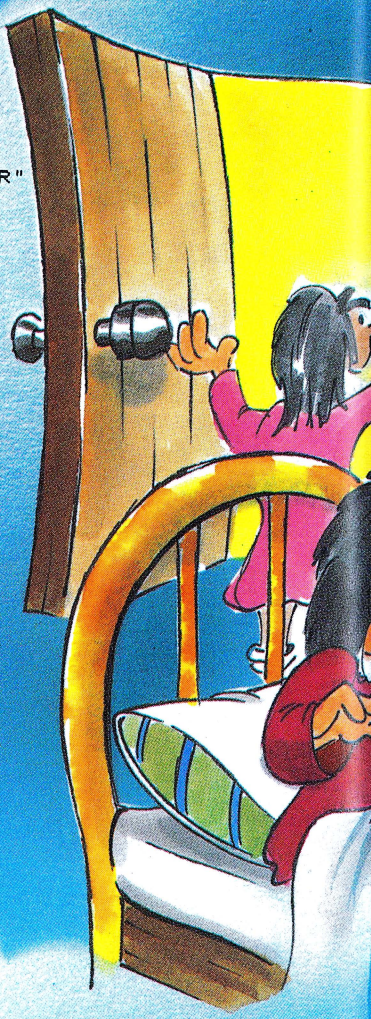
```
100 PRINT:PRINT"PICK THE NUMBER FOR":PRINT"ONE OF THESE PLACES:"
105 DIMP$(10)
110 FORI=1TO9
115 P$=""
120 READP$,G(I)
130 PRINTI;" - ";P$
140 NEXTI
200 PRINT:PRINT"ENTER A NUMBER BETWEEN 1 AND 9":INPUTN
210 IF N<1 OR N>9 THEN 200
220 PRINT:PRINT"HOW MUCH DO YOU WEIGH":INPUTW1
230 W2=W1*G(N)
240 RESTORE
250 FORI=1TON:P$="":READP$,G:NEXTI
260 PRINT:PRINT"ON ";P$;", YOU WOULD WEIGH ";W2
270 IF W2>W1 THENPRINT"YOU'LL BE HEAVY!"
280 IF W2<W1 THENPRINT"YOU'LL HARDLY WEIGH":PRINT"ANYTHING AT ALL!"
500 DATAMERCURY,.38,VENUS,.89,MOON,.165,MARS,.38,JUPITER,2.54
510 DATASATURN,1.2,URANUS,1.07,NUPTUNE,1.4,PLUTO,.7
```



ADVENTURE TIME

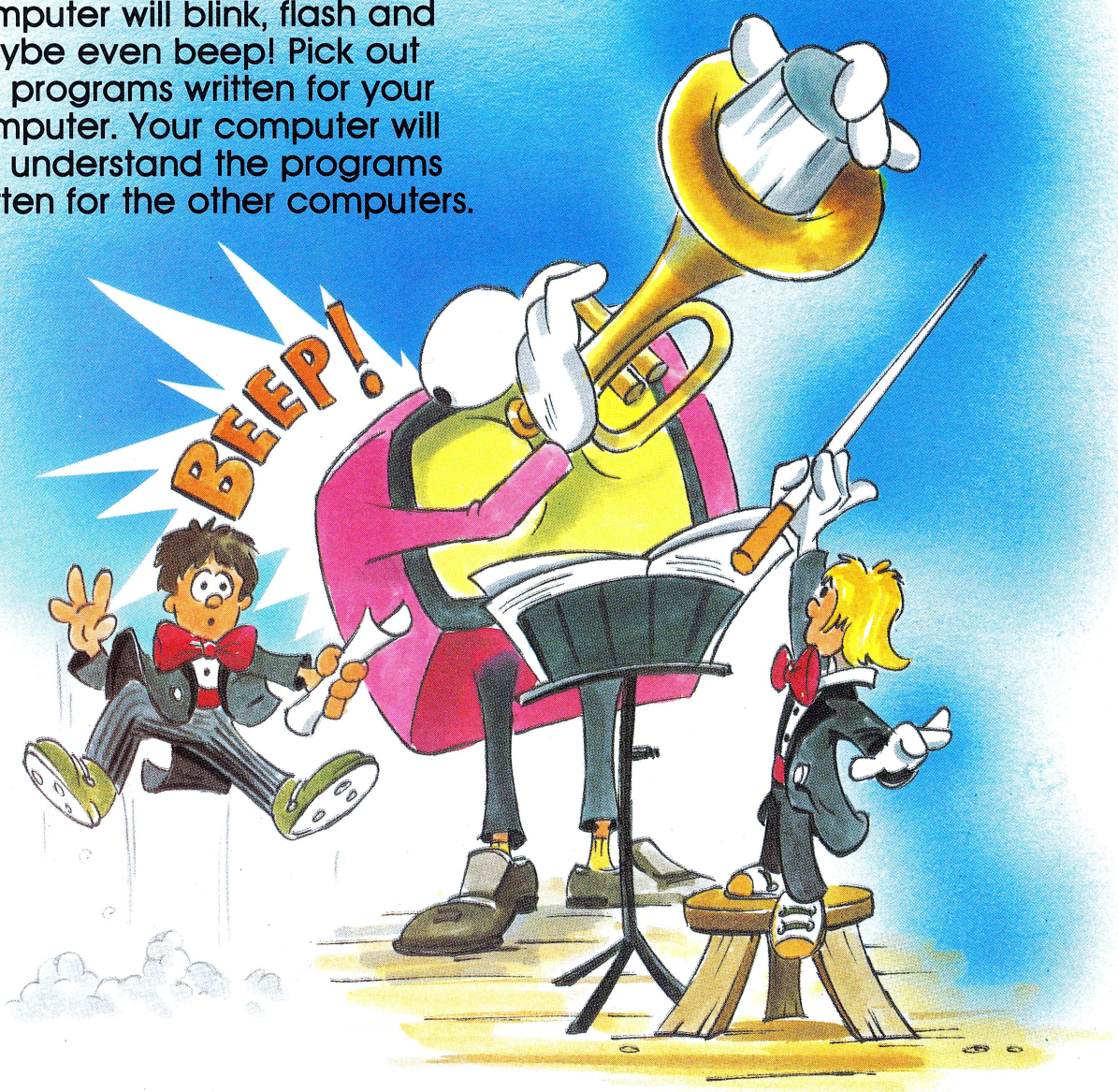
Have you learned how the GOTO command works? Try and figure out this crazy program!

```
1 DIMA$(1)
5 GOTO70
10 PRINT"WITH ORANGE AND"
11 PRINT"RED LUMPS."
15 GOTO60
20 PRINT"THEN YOU HEAR A"
21 PRINT"VOICE ROAR! IT"
25 GOTO130
30 PRINT"YOUR FATHER. IT WAS"
31 PRINT"ONLY A DREAM."
35 END
40 PRINT"AFTER A WHILE YOU"
41 PRINT"COME TO A STRANGE"
45 GOTO80
50 PRINT"YOU LOOK UP AND SEE"
51 PRINT"A GIANT! HE HAS"
55 GOSUB200:GOTO90
60 PRINT"YOU DECIDE TO LOOK"
61 PRINT"AROUND."
65 GOTO100
70 PRINT"IT'S BEDTIME. YOU"
71 PRINT"SAY GOODNIGHT TO YOUR":PRINT"FAMILY."
75 GOTO110
80 PRINT"STREAM.IT ISN'T"
81 PRINT"WATER.YOU TASTE A BIT."
85 GOTO120
90 PRINT"A FORK FULL OF"
91 PRINT"LETTUCE. YOU SCREAM."
95 GOTO140
100 PRINT"YOU FOLLOW THE PATH"
101 PRINT"IN FRONT OF YOU."
105 GOSUB200:GOTO40
110 PRINT"WHEN YOU OPEN YOUR"
111 PRINT"BEDROOM DOOR, YOU ARE"
115 GOTO150
120 PRINT"IT TASTES LIKE SALAD"
121 PRINT"DRESSING. JUST"
125 GOTO20
130 PRINT"SAYS ";CHR$(34);"WHO'S BEEN"
131 PRINT"EATING MY SALAD!";CHR$(34)
135 GOTO50
140 PRINT"THE GIANT CHANGES."
141 PRINT"HE BECOMES"
145 GOTO30
150 PRINT"SURPRISED TO FIND A"
151 PRINT"DEEP GREEN VALLEY"
155 GOTO10
200 PRINT:PRINT"(PRESS RETURN OR"
201 PRINT"ENTER TO CONTINUE)"
210 INPUTA$
220 RETURN
"
```



COMPUTER JAZZ

Over the next few pages are some fancy programs to show off your computer's talent. Your computer will blink, flash and maybe even beep! Pick out the programs written for your computer. Your computer will not understand the programs written for the other computers.

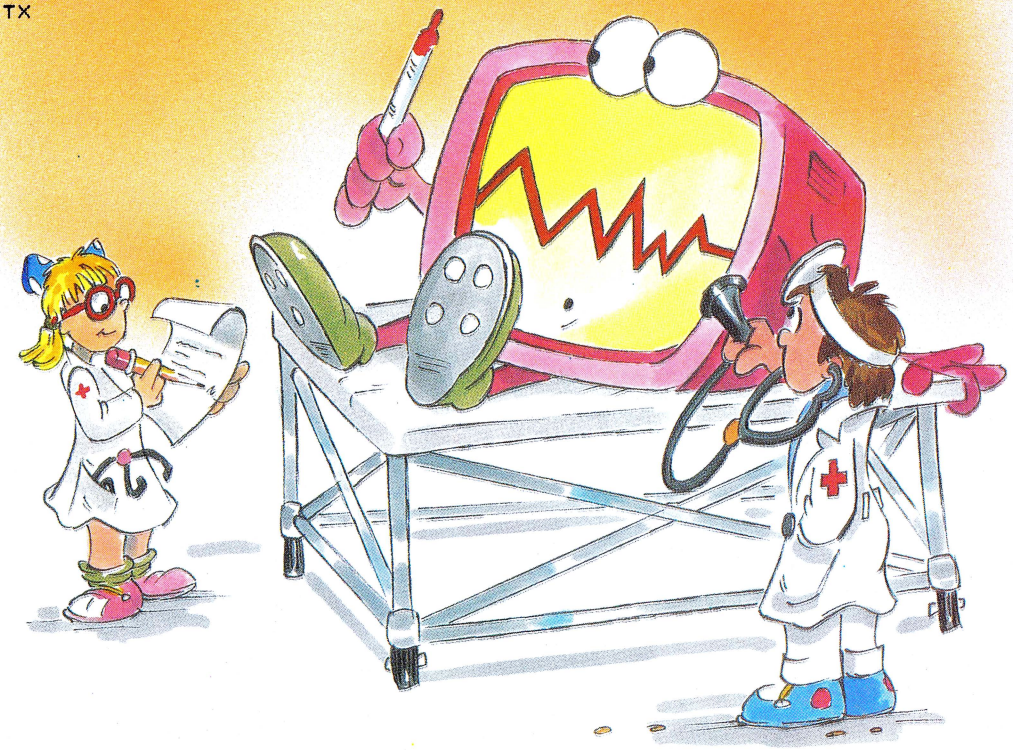


C64 HEARTBEAT

```
100 FORI=54272TO54296:POKEI,0:NEXTI
110 POKE54273,8:POKE54272,96:POKE54296,15
120 V1=54276
130 POKE54277,128:POKE54278,128
140 PRINTCHR$(147)
150 FORX=0TO39STEP2
160 FORY=5TO18
170 S=1024+X+Y*40
175 POKES,81:POKES+54272,5
180 FORI=1TO10:NEXTI
185 POKES,32
190 NEXTY
200 POKEV1,33
210 FORI=1TO50:NEXTI
220 POKEV1,32
260 FORY=18TO5STEP-1
270 S=1024+X+Y*40
275 POKES,81:POKES+54272,5
280 FORI=1TO10:NEXTI
285 POKES,32
290 NEXTY
300 NEXTX
```

VIC HEARTBEAT

```
100 FORI=36873TO36878:POKEI,0:NEXTI
110 POKE36878,15
120 V1=36876
130 S=PEEK(648)*256
135 C=37888+4*(PEEK(36866)AND128)
140 PRINTCHR$(147)
150 FORX=0TO21STEP2
160 FORY=4TO17
170 POKES+X+Y*22,81:POKEC+X+Y*22,2
180 FORI=1TO10:NEXTI
185 POKES+X+Y*22,32
190 NEXTY
200 POKEV1,200
210 FORI=1TO50:NEXTI
220 POKEV1,0
260 FORY=17TO4STEP-1
270 POKES+X+Y*22,81:POKEC+X+Y*22,2
280 FORI=1TO10:NEXTI
285 POKES+X+Y*22,32
290 NEXTY
300 NEXTX
```

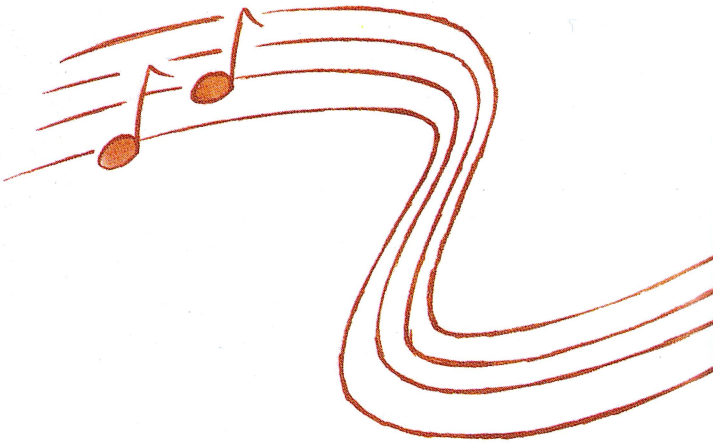


VIC SOUND

```
10 V0=36878:V1=36877:V2=36875
20 S=PEEK(648)*256
30 C=37888+4*(PEEK(36866)AND128)
100 FORI=36873TO36878:POKEI,0:NEXTI
110 PRINTCHR$(147)
140 POKEV0,15:POKEV1,150
160 FORY=516TO10STEP-22
170 POKES+Y,90:POKEC+Y,2
175 POKES+Y+22,32
180 FORI=1TO50:NEXTI
185 NEXTY
210 POKEV0,15:POKEV2,33
230 FORI=1TO7
235 FORM=200TO220
240 POKEV2,M
250 NEXTM
255 FORJ=1TO100:NEXTJ
260 POKEV2,0
265 NEXTI
270 FORI=15TO0STEP-.5
280 POKEV0,I
285 FORJ=1TO100:NEXTJ
290 NEXTI
300 FORI=54272TO54296:POKEI,0:NEXTI
```

C64 SOUND

```
10 V0=54296:V1=54276:V2=54283
20 L1=54273:H1=54272
30 L2=54279:H2=54280
100 FORI=54272TO54296:POKEI,0:NEXTI
110 PRINTCHR$(147)
120 POKE54277,128:POKE54278,128
130 POKE54284,128:POKE54285,128
140 POKEV0,15:POKEV1,129
150 POKEH1,20:POKEL1,30
160 FORY=1962TO1042STEP-40
170 POKEY,90:POKEY+54272,2
175 POKEY+40,32
180 FORI=1TO50:NEXTI
185 NEXTY
210 POKEV0,15:POKEH2,15:POKEV2,33
230 FORI=1TO7
235 FORM=0TO255STEP12
240 POKEL2,M:POKEV2,33
250 NEXTM
255 FORJ=1TO100:NEXTJ
260 POKEV2,32
265 NEXTI
270 FORI=15TO0STEP-.5
280 POKEV0,I
285 FORJ=1TO100:NEXTJ
290 NEXTI
300 FORI=54272TO54296:POKEI,0:NEXTI
```



APPLE/ADAM SLIPSTREAM

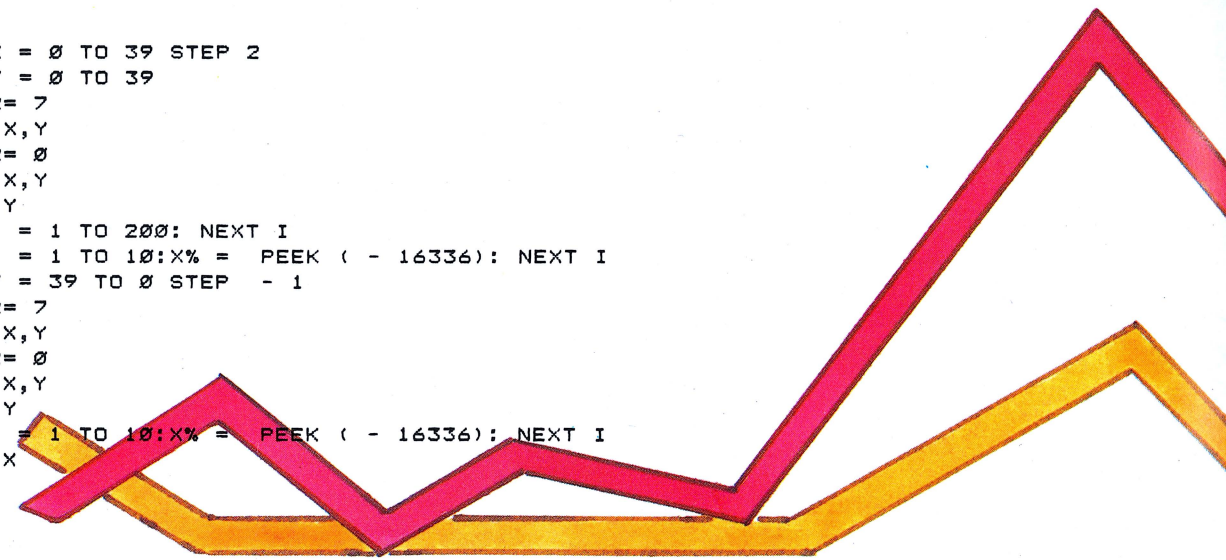
```
100  HOME
110  INPUT "SIZE? ";NB
120  IF NB < 0 THEN 110
130 X1 = 0:X2 = 0:Y1 = 0:Y2 = 0:C1 = 0:C2 = 0:AY = 1
140  DIM C(NB),TX(NB),TY(NB),TA(NB),TB(NB)
150  HGR2
160  DEF  FN R(X) =  INT ( RND (1) * X)
170 DX =  FN R(9) - 4:DY =  FN R(9) - 4:DA =  FN R(9) - 4:DB =  FN R(9)
 - 4
180  HCOLOR= 0: HPLOT TX(AY),TY(AY) TO TA(AY),TB(AY)
190  IF C1 = 0 THEN HC =  FN R(3) + 1: HCOLOR= HC:C1 = 5 * (1 +  FN R(10))
200  IF C2 = 0 THEN C2 = 5 * ( FN R(10) + 1): GOTO 170
210 PX1 = X1 + DX1
220  IF PX1 >  = 0 AND PX <  = 279 THEN 240
230 PX = X1:DX =  - DX
240 X1 = PX
250 PY = Y1 + DY
260  IF PY >  = 0 AND PY <  = 191 THEN 280
270 PY = Y1:DY =  - DY
280 Y1 = PY
290 PA = X2 + DA
300  IF PA >  = 0 AND PA <  = 279 THEN 320
310 PA = X2:DA =  - DA
320 X2 = PA
330 PB = Y2 + DB
340  IF PB >  = 0 AND PB <  = 191 THEN 360
350 PB = Y2:DB =  - DB
360 Y2 = PB
370  HCOLOR= HC
380  HPLOT X1,Y1 TO X2,Y2
390 C(AY) = HC:TX(AY) = X1:TY(AY) = Y1:TA(AY) = X2:TB(AY) = Y2
400 C1 = C1 - 1:C2 = C2 - 1
410 AY = AY + 1: IF AY > NB THEN AY = 1
420  GOTO 180
```

APPLE TRIANGLES

```
100  DEF  FN R(X) =  INT ( RND (1) * X)
110 X =  FN R(192):F = (( FN R(10) + 1) / 10 + 1.01) *  SGN (85 - X)
120 A =  FN R(280):B =  FN R(192)
130  IF F = 0 THEN 110
140  HGR2 : HCOLOR= 7
150  ONERR  GOTO 190
160 XX = 1
170  HPLOT 0,X TO 279,X
180  HPLOT 0,X TO A,B TO 279,X
190 X = X + XX: IF X < 0 OR X > 191 THEN QQ = QQ + 1: IF QQ = 5 THEN 220
200 XX = XX * F
210  GOTO 170
220 :
230  RUN
```

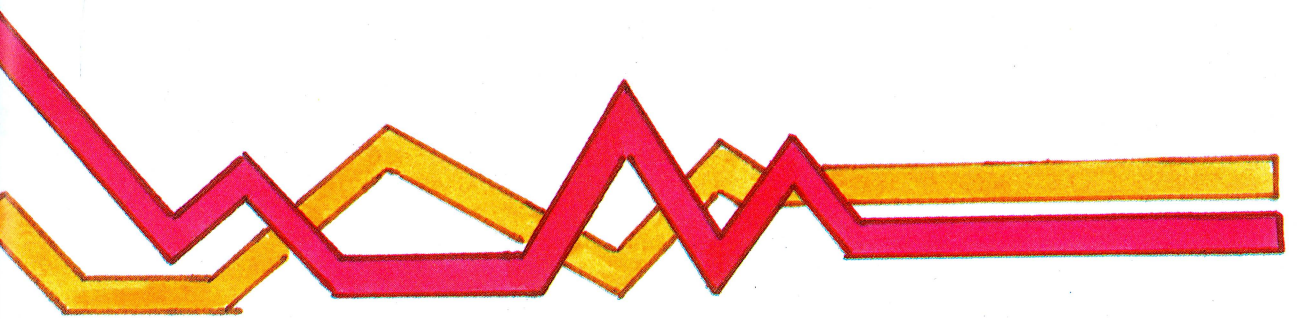
APPLE HEARTBEAT

```
150  GR
160  FOR X = 0 TO 39 STEP 2
170  FOR Y = 0 TO 39
180  COLOR= 7
190  PLOT X,Y
200  COLOR= 0
210  PLOT X,Y
220  NEXT Y
225  FOR I = 1 TO 200: NEXT I
230  FOR I = 1 TO 10:X% =  PEEK ( - 16336): NEXT I
300  FOR Y = 39 TO 0 STEP  - 1
310  COLOR= 7
320  PLOT X,Y
330  COLOR= 0
340  PLOT X,Y
350  NEXT Y
360  FOR I = 1 TO 10:X% =  PEEK ( - 16336): NEXT I
370  NEXT X
380  TEXT
```



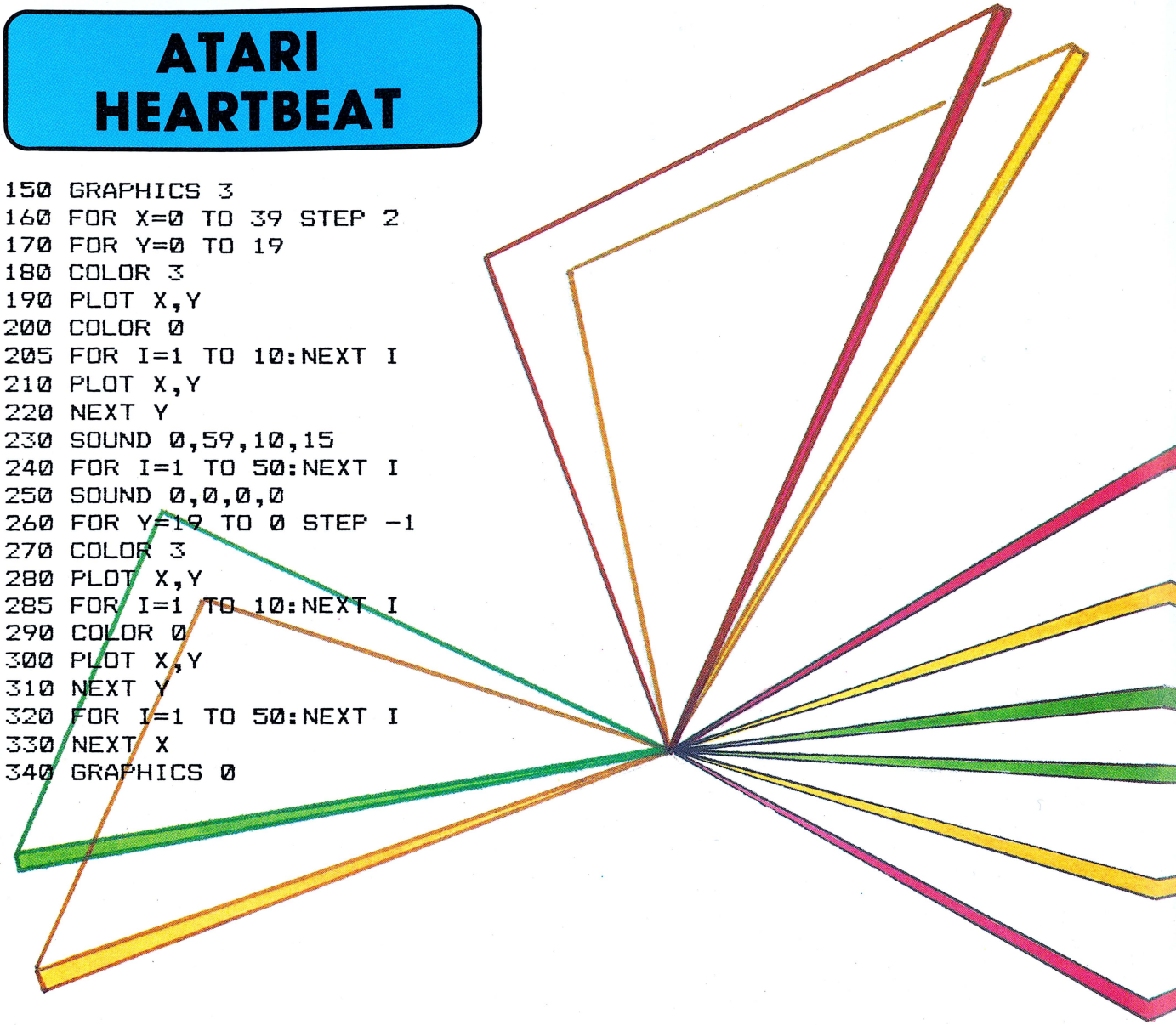
ATARI SLIPSTREAM

```
100 PRINT CHR$(125)
110 PRINT "SIZE";
115 INPUT NB
120 IF NB<0 THEN 110
130 X1=0:X2=0:Y1=0:C1=0:C2=0:AY=1
140 DIM C(NB),TX(NB),TY(NB),TA(NB),TB(NB)
150 GRAPHICS 5
170 DX=INT(RND(1)*9)-4:DY=INT(RND(1)*9)-4:DA=INT(RND(1)*9)-4:DB=INT(RND(1)*9)-4
180 COLOR 0:PLOT TX(AY),TY(AY):DRAWTO TA(AY),TB(AY)
190 IF C1=0 THEN HC=INT(RND(1)*4)+1:COLOR HC:C1=5*(1+INT(RND(1)*10))
200 IF C2=0 THEN C2=5*(INT(RND(1)*10)+1):GOTO 170
210 PX=X1+DX
220 IF PX>=0 AND PX<=79 THEN 240
230 PX=X1:DX=-DX
240 X1=PX
250 PY=Y1+DY
260 IF PY>=0 AND PY<=39 THEN 280
270 PY=Y1:DY=-DY
280 Y1=PY
290 PA=X2+DA
300 IF PA>=0 AND PA<=79 THEN 320
310 PA=X2:DA=-DA
320 X2=PA
330 PB=Y2+DB
340 IF PB>=0 AND PB<=39 THEN 360
350 PB=Y2:DB=-DB
360 Y2=PB
370 COLOR HC
380 PLOT X1,Y1:DRAWTO X2,Y2
390 C(AY)=HC:TX(AY)=X1:TY(AY)=Y1:TA(AY)=X2:TB(AY)=Y2
400 C1=C1-1:C2=C2-1
410 AY=AY+1:IF AY>NB THEN AY=1
420 GOTO 180
```



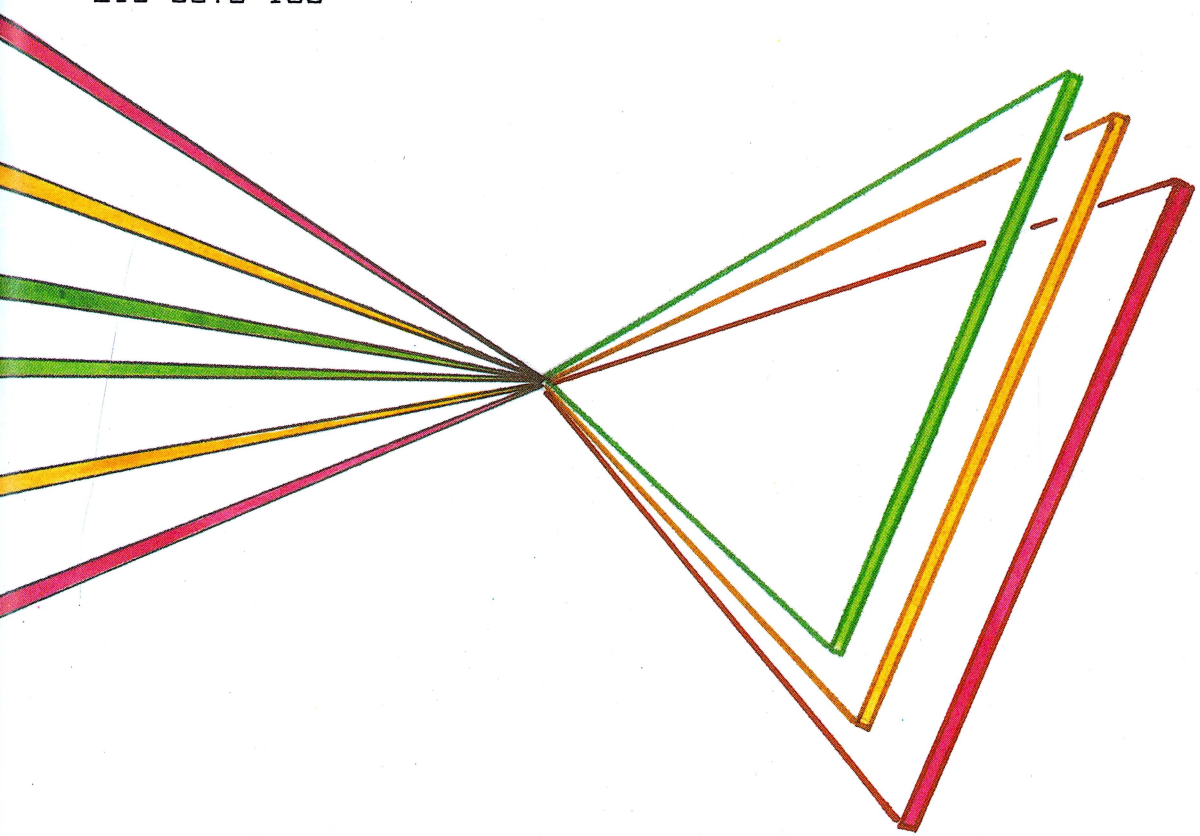
ATARI HEARTBEAT

```
150 GRAPHICS 3
160 FOR X=0 TO 39 STEP 2
170 FOR Y=0 TO 19
180 COLOR 3
190 PLOT X,Y
200 COLOR 0
205 FOR I=1 TO 10:NEXT I
210 PLOT X,Y
220 NEXT Y
230 SOUND 0,59,10,15
240 FOR I=1 TO 50:NEXT I
250 SOUND 0,0,0,0
260 FOR Y=19 TO 0 STEP -1
270 COLOR 3
280 PLOT X,Y
285 FOR I=1 TO 10:NEXT I
290 COLOR 0
300 PLOT X,Y
310 NEXT Y
320 FOR I=1 TO 50:NEXT I
330 NEXT X
340 GRAPHICS 0
```



ATARI TRIANGLES

```
110 X=INT(RND(1)*80):F=(INT(RND(1)*10+1)/10+1.01)*SGN(85-X)
120 A=INT(RND(1)*160):B=INT(RND(1)*80)
130 IF F=0 THEN 110
140 GRAPHICS 7:COLOR 1
160 XX=11
165 IF X>80 THEN RUN
170 PLOT 0,X:DRAWTO 159,X
180 PLOT 0,X:DRAWTO A,B:DRAWTO 159,X
190 X=X+XX:IF X<0 OR X>80 THEN QQ=QQ+1:IF QQ=5 THEN RUN
200 XX=XX*F
210 GOTO 165
```



TRS-80 SLIPSTREAM

COLOR COMPUTER WITH EXTENDED BASIC PROGRAM

```
100 CLS
110 INPUT"SIZE";NB
120 IFNB<0THEN110
130 X1=0:X2=0:Y1=0:Y2=0:C1=0:C2=0:AY=1
140 DIMC(NB),TX(NB),TY(NB),TA(NB),TB(NB)
150 PMODE3,1:SCREEN3,1:PCLS0
160 DEFFNR(X)=RND(X)-1
170 DX=FNR(9)-4:DY=FNR(9)-4:DA=FNR(9)-4:DB=FNR(9)-4
180 COLOR0,0:LINE(TX(AY),TY(AY))-(TA(AY),TB(AY)),PSET
190 IFC1=0THENHC=FNR(8):COLORHC,3:C1=5*(1+FNR(10))
200 IFC2=0THENC2=5*(FNR(10)+1):GOTO170
210 PX=X1+DX
220 IF PX=>0ANDPX<=256THEN240
230 PX=X1:DX=-DX
240 X1=PX
250 PY=Y1+DY
260 IFPY=>0ANDPY<=191THEN280
270 PY=Y1:DY=-DY
280 Y1=PY
290 PA=X2+DA
300 IFPA=>0ANDPA<=256THEN320
310 PA=X2:DA=-DA
320 X2=PA
330 PB=Y2+DB
340 IFPB=>0ANDPB<=191THEN360
350 PB=Y2:DB=-DB
360 Y2=PB
370 COLORHC,0
380 LINE(X1,Y1)-(X2,Y2),PSET
390 C(AY)=HC:TX(AY)=X1:TY(AY)=Y1:TA(AY)=X2:TB(AY)=Y2
400 C1=C1-1:C2=C2-1
410 AY=AY+1:IF AY>NB THEN AY=1
420 GOTO180
```

TRS-80 TRIANGLES

COLOR COMPUTER WITH EXTENDED BASIC PROGRAM

```
100 DEFFNR(X)=RND(X)-1
110 X=FNR(192):F=((FNR(10)+1)/10+1.01)*SGN(85-X)
120 A=FNR(256):B=FNR(192)
130 IFF=0THEN110
140 PMODE3,1:SCREEN3,1:PCLS0:COLOR7,0
160 XX=1
165 IFX>191THENRUN
170 LINE(0,X)-(256,X),PSET
180 LINE(0,X)-(A,B),PSET:LINE(A,B)-(256,X),PSET
190 X=X+XX:IFX<0ORX>191THENRUN
200 XX=XX*F
210 GOTO165
```

TRS-80 HEARTBEAT

```
100 CLS(0)
110 COLOR0,0
160 FORX=0TO63STEP3
170 FORY=0TO31
190 SET(X,Y,7)
200 CLS(0)
220 NEXTY
230 SOUND128,3
300 FORY=31TO0STEP-1
320 SET(X,Y,7)
330 CLS(0)
350 NEXTY
360 SOUND128,3
370 NEXTX
```

GLOSSARY

BASIC - The language most home computers understand. It stands for Beginner's All-purpose Symbolic Instruction Code.

bug - A problem in a program that stops a program from working right.

character - Any number, letter, space or symbol.

character string - A set of characters inside quotes.

co-ordinates - The pair of numbers that specify the row and column on the screen.

cursor - The marker on the screen that shows you where you are typing.

debug - To find and fix bugs in a program.

delay - When the computer waits and does nothing for a while.

delete - To remove something like a line, a program or a character.

disk - A round flat piece of plastic kept in a square sleeve that is used to store information.

disk drive - The machine that writes and reads information on disks.

graphics - Pictures or patterns drawn on a computer's screen.

input - Information that the computer is given to work with.

language - Words that a computer understands.

line number - A number that is assigned to a program line.

loop - When the computer is made to do something over and over again.

memory - The space a computer has to store information and/or instructions.

output - Information that a computer gives out.

pixel - A tiny dot on the screen. Groups of pixels make up characters and graphics.

program - A series of instructions for the computer to do.

random number - A number that is chosen by chance. It is like rolling dice.

syntax error - A message from the computer that it doesn't understand something.

BOOKS IN THIS SERIES

Let's Look At Computers
Let's Look At Computer Play
Let's Look At Basic
Let's Look At Computer Games

HAYES PUBLISHING LTD.
3312 MAINWAY
BURLINGTON, ONTARIO
L7M 1A7

ISBN O-88625-O87-O

Printed in Hong Kong